

Listing of Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

1. (Previously Presented) A method of fabricating substrates, the method comprising:

providing a substrate comprising a film of material characterized by a non-uniform surface, the non-uniform surface including a plurality of defects, at least some of the defects being of a size ranging from about 100 Angstroms and greater; and

applying a combination of a deposition species for deposition of a deposition material and an etching species for etching an etchable material during a portion of time that the non-uniform surface is subjected to the etching, the combination of the deposition species and the etching species contacting the non-uniform surface in a thermal setting to reduce a level of non-uniformity of the non-uniform surface by filling a portion of the defects to smooth the film of material, the film of material being substantially free from the defects and being characterized by a surface roughness of a predetermined value.

2. (Original) The method of claim 1 wherein said thermal setting increases a temperature of said non-uniform surface to about 1,000 Degrees Celsius and greater.

3. (Original) The method of claim 2 wherein said temperature increases is about 10 Degrees Celsius per second and greater.

4. (Original) The method of claim 2 wherein said temperature increases is about 20 Degrees Celsius per second and greater.

5. (Previously Presented) The method of claim 1 wherein said non-uniform surface comprises a plurality of particles therein, the particles comprising a hydrogen bearing species.

6. (Original) The method of claim 5 wherein said plurality of particles are derived from hydrogen gas during an implantation process.

7. (Original) The method of claim 1 wherein said predetermined value is less than about two nanometers root mean square.

8. (Original) The method of claim 1 wherein said predetermined value is less than about 1 nanometers root mean square.

9. (Previously Presented) The method of claim 1 wherein said predetermined value is less than about 0.1 nanometer root mean square.

10. (Original) The method of claim 1 wherein said etching species comprise a hydrogen bearing compound.

11. (Previously Presented) The method of claim 1 wherein said etching species comprise a halogen bearing compound.

12. (Previously Presented) The method of claim 1 wherein said etching species comprise a fluorine bearing compound.

13. (Original) The method of claim 12 wherein said fluorine bearing compound is selected from SF₆, CF₄, NF₃, and CCl₂F₂.

14. (Original) The method of claim 1 wherein said deposition species comprise a silane bearing gas.

15. (Original) The method of claim 1 wherein said deposition species comprise a silicon bearing species.

16. (Previously Presented) The method of claim 1 wherein said deposition species comprise a species selected from SiH₄, SixClyHz, and SiClx.

17. (Original) The method of claim 1 wherein the non-uniform surface is a cleaved surface, the cleaved surface being made from a process selected from a controlled cleaving action, a Smart Cut™ process, or an ELTRAN™ process.

18. (Original) The method of claim 1 wherein the defects are called HF defects.

19. (Previously Presented) The method of claim 1, wherein the substrate is a silicon substrate having a single crystal orientation.

20. (Previously Presented) A method of fabricating substrates, the method comprising:

providing a substrate comprising a film of material with a non-uniform surface, the non-uniform surface including a plurality of defects, at least some of the defects being 100 Angstroms or greater; and

applying simultaneously to the non-uniform surface in a thermal setting a combination of a silicon-containing-deposition species for deposition of a deposition material and a halogen-containing-etching species for etching an etchable material in order to smooth the surface.

21. (Previously Presented) The method of claim 20, wherein the thermal setting is a temperature of about 1,000 degrees Celsius or greater.

22. (Previously Presented) A method of fabricating substrates, the method comprising:

providing a silicon substrate comprising a film of material with a non-uniform surface, the non-uniform surface including a plurality of defects, at least some of the defects being 100 Angstroms or greater, the silicon substrate having a single crystal orientation, the non-uniform surface including particles derived from hydrogen gas during an implantation process; and

applying simultaneously to the non-uniform surface a combination of a silicon-containing-deposition species for deposition of a deposition material and a halogen-containing-etching species for etching an etchable material in order to smooth and reduce a level of non-uniformity of the non-uniform surface, the halogen-containing-etching species including HCl,

wherein the combination of the deposition species and the etching species are contacting the non-uniform surface placed in a thermal setting of a temperature of about 1,000 degrees Celsius or greater.

23. (Previously Presented) A method of claim 1 wherein the etching species is gaseous HCl.